IN THE CLAIMS:

The following listing of claims will replace all prior versions and listings of claims in the Application.

Listing of Claims

1. (Currently Amended) A system for identifying pixels inside a graphics primitive of a raster image, the system comprising:

a memory for storing a raster image; and

a graphics engine coupled to the memory and comprising a pipeline structure configured for both sequential and parallel processing, the pipeline structure ~~receiving information related to polygonal portions of the raster image from the memory and information related to graphics primitives from a source for determining~~ comprising a first plurality of sequential logic circuits coupled in series and a second plurality of parallel logic circuits coupled to the first plurality of sequential logic circuits, each of the logic circuits configured to determine whether a polygonal portion of the raster image is at least partly inside the graphics primitive.

2. (Cancelled)

3. (Currently Amended) The system of claim 1 wherein the pipeline structure ~~divides~~ is further configured to divide the polygonal portion into a predetermined number of polygonal subportions if the polygonal portion is at least partly inside the graphics primitive.

4. (Currently Amended) The system of claim 1 wherein the pipeline structure determines whether the polygonal portion of the raster image is at least partly inside the graphics primitive by ~~evaluation of~~ evaluating edge functions of the graphics primitive on at least one corner vertex of the polygonal portion.

5. (Currently Amended) The system of claim 4 wherein each edge function of the graphics primitive is ~~based on a general edge function, $e(x, y) = e_0 + n_x x + n_y y$ where e_0 is a constant, n_x is the x-component of a normal vector n which is normal to an edge of the primitive and n_y is the y-component of the normal vector n~~ a vector function comprising both an x-component and a y-component of a vector normal to the edge function.

6. (Currently Amended) The system of claim 4 wherein the edge ~~function is~~ functions are evaluated ~~at a~~ on at least one corner vertex of the polygonal portion~~, the~~ to determine a corner vertex of the polygonal portion being farthest ~~in a positive direction~~ from a primitive edge associated with the edge function in a direction toward the inside of the graphics primitive.

7. (Currently Amended) The system of claim [[2]] 1, wherein ~~the pipeline structure is configured such that~~ the sequential logic circuits are ~~coupled together in series~~ followed by the parallel logic circuits ~~coupled together in parallel~~.

8. (Currently Amended) The system of claim [[2]] 1, wherein the ~~pipeline structure comprises seven sequential logic circuits connect in series and seven~~ parallel logic circuits are coupled together in a ~~multi-stage~~ pyramid structure.

9. (Currently Amended) The system of claim 3 wherein the predetermined number of polygonal subportions is two and the pipeline structure determines the two polygonal subportions by determining midpoint values of two opposite sides of the polygonal portion of the raster image and using the midpoint values as vertices of the two polygonal subportions.

10. (Currently Amended) The system of claim 1 wherein the pipeline structure further comprises a predetermined number of pixel engines ~~for determining~~ coupled to at least some of the parallel logic circuits and configured to determine attribute values associated with each pixel.

11. (Original) The system of claim 1 wherein the polygonal portion of a raster image has a width ΔX and a height ΔY, each of the width ΔX and the height ΔY having a value of 2^m.

12. (Previously Presented) A method of identifying pixels inside a graphics primitive of a raster image, comprising the steps of:

(a) determining whether a polygonal portion of the raster image is at least partly inside the graphics primitive by using a coordinate reference frame located at a geometric center of the polygonal portion;

(b) dividing the polygonal portion of the raster image into a predetermined number of polygonal subportions if the polygonal portion of the raster image is at least partly inside the graphics primitive;

(c) determining whether each polygonal subportion of the raster image is at least partly inside the graphics primitive; and

(d) further dividing the polygonal subportion into a predetermined number of polygonal subportions if the polygonal subportion is at least partly inside the graphics primitive and is larger than a pixel.

13. (Original) The method of claim 12 further comprising the step of recursively performing (c) and (d) until there are no more polygonal subportions that are at least partly inside the graphics primitive.

14. (Previously Presented) The method of claim 12, wherein the determining step (a) further comprises the step of receiving a plurality of values for corner vertices of the polygonal portion and arithmetic edge functions, each of the arithmetic edge functions corresponding to an edge of the graphics primitive.

15. (Currently Amended) The method of claim 14, wherein the determining step (a) further comprises the step of evaluating an arithmetic edge function ~~received at a~~ corresponding to an edge of the graphics primitive on at least one corner vertex of the polygonal portion~~, the~~ to determine a corner vertex being farthest ~~in a positive direction relative to~~ from the corresponding edge of the graphics primitive in a direction toward the inside of the graphics primitive.

16. (Original) The method of claim 15, wherein the polygonal portion is at least partly inside the graphics primitive if all arithmetic edge functions evaluated are positive.

17. (Currently Amended) The method of claim 12 wherein the dividing step (b) further comprises the step of dividing the polygonal portion into two polygonal subportions by determining midpoint values of two opposite sides of the polygonal portion.

18. (Original) The method of claim 12 wherein the dividing step (b) further comprises the step of sequentially deriving two new sets of arithmetic edge functions associated with a translated coordinate reference frame located at a geometric center of a corresponding one of the polygonal subportions.

19. (Currently Amended) The method of claim 12 wherein the dividing step (b) further comprises the step of ~~sequentially~~ outputting multiple sets of information, wherein each set of information includes corner vertices of one of the ~~created~~ polygonal subportions and a corresponding new set of derived arithmetic edge functions defining the one polygonal subportion.

20. (Previously Presented) An electronically-readable medium having embodied thereon a program, the program being executable by a machine to perform method steps for identifying pixels inside graphics primitives of a raster image, the method steps comprising:

(a) determining whether a polygonal portion of the raster image is at least partly inside the graphics primitive by using a coordinate reference frame located at a geometric center of the polygonal portion;

(b) dividing the polygonal portion into a predetermined number of polygonal subportions if the polygonal portion is at least partly inside the graphics primitive;

(c) determining whether the polygonal subportion is at least partly inside the graphics primitive for each polygonal subportion; and

(d) dividing the polygonal subportion into a predetermined number of polygonal subportions if the polygonal subportion is at least partly inside the graphics primitive and the polygonal subportion is larger than a pixel.

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21. (Original) The electronically-readable medium of claim 20 further comprising the step of recursively performing steps (c) and (d) for each polygonal subportion larger than a pixel that is at least partly inside the graphics primitive.

22. (Currently Amended) A method of identifying pixels inside a graphics primitive of a raster image comprising the steps of:

selecting a tile including a pixel;

defining a coordinate reference frame located at a geometric center of the tile;

determining if a portion of the tile is within the graphics primitive;

dividing the tile into subtiles if a portion of the tile is within the graphics primitive and an other portion of the tile is outside the graphics primitive; and

recursively dividing each subtile larger than a pixel and having a portion within the graphics primitive and an other portion outside the graphics primitive into subtiles ~~until the subtile is equal in size to a pixel~~.

23. (Cancelled)

24. (Currently Amended) The method of claim 22 wherein the step of determining further comprises evaluating the tile at a corner vertex which is farthest in a ~~positive~~ direction toward the inside of the graphics primitive relative to ~~a current~~ an edge of the graphics primitive.

25. (Currently Amended) The method of claim 22 wherein the step of recursively dividing further comprises determining if the subtile is at least partly within the graphics primitive by evaluating the subtile at a corner vertex which is farthest in a ~~positive~~ direction toward the inside of the graphics primitive relative to ~~a current~~ an edge of the graphics primitive.

26. (Cancelled)

27. (New) The electronically-readable medium of claim 20, wherein the polygonal portion is a tile and the polygonal subportion is a subtile.

28. (New) A method of rasterizing a graphics primitive for a raster image, the method comprising the steps of:

deriving edge functions for the graphics primitive according to a coordinate reference frame located at a geometric center of a tile in the raster image, each edge function corresponding to an edge of the graphics primitive; and

evaluating each edge function on at least one vertex of the tile to determine at least one vertex of the tile inside the graphics primitive.

29. (New) The method of claim 28, further comprising the steps of:

evaluating at least one edge function on at least one vertex of the tile to determine whether a portion of the tile is outside the graphics primitive;

dividing the tile into subtiles if a portion of the tile is inside the graphics primitive and a portion of the tile is outside the graphics primitive; and

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dividing each subtile larger than a pixel and having a portion inside the graphics primitive and a portion outside the graphics primitive into subtiles.